

Claims

1. A mode switching method for a multi-mode multi-band mobile communication terminal in a multi-access communication network, the multi-mode multi-band mobile communication terminal having modems for communication with a plurality of communication networks having different coverages, comprising:

the first step of calculating link quality of a Wireless Local Area Network (WLAN) in which the mobile communication terminal is currently located;

the second step of comparing the link quality calculated at the first step with a first reference value preset in connection with the WLAN;

the third step of measuring a signal from a portable Internet having coverage wider than that of the current communication network if, as a result of the comparison at the second step, it is determined that the link quality of the WLAN is lower than the first reference value;

the fourth step of calculating link quality of the portable Internet; and

the fifth step of switching a mode of the mobile communication terminal to perform handoff to the portable Internet if it is determined that the link quality of the portable Internet calculated at the fourth step is higher than a second reference value.

20 2. The mode switching method according to claim 1, further comprising the steps of:

determining whether the link quality of the WLAN is higher than the second reference value if the signal from the portable Internet has not been measured at the third step; and

maintaining communication with the WLAN if, as a result of the determination, the link quality of the WLAN is higher than the second reference value.

3. The mode switching method according to claim 2, further comprising the step
5 of switching the mode of the mobile communication terminal to perform handoff to the mobile communication terminal if the link quality of the WLAN is not higher than the second reference value.

4. The mode switching method according to claim 1, further comprising the steps
10 of:

determining whether the link quality of the WLAN is higher than the second reference value if the link quality of the portable Internet calculated at the fourth step is not higher than the second reference value;

15 maintaining communication with the WLAN if, as a result of the determination, the link quality of the WLAN is higher than the second reference value; and

switching the mode of the mobile communication terminal to perform handoff to the mobile communication network if the link quality of the WLAN is not higher than the second reference value.

20 5. The mode switching method according to claim 1, wherein the link quality is a data transmission rate of a corresponding communication network based on a Packet Error Rate (PER).

25 6. The mode switching method according to claim 1, wherein the reference value is a minimal effective transmission rate of a current communication network.

7. A mode switching method for a multi-mode multi-band mobile communication terminal in a multi-access communication network, the multi-mode multi-band mobile communication terminal having modems for communication with a plurality of communication networks having different coverages, comprising:

5 the first step of measuring a signal from a WLAN having coverage narrower than that of a portable Internet in which the mobile communication terminal is currently located;

10 the second step of calculating link quality of the WLAN signal measured at the first step;

 the third step of comparing the link quality of the WLAN signal measured at the second step with a preset first reference value; and

15 the fourth step of switching a mode of the mobile communication terminal to perform handoff to the WLAN if, as a result of the comparison at the third step, the link quality of the WLAN is higher than the first reference value.

8. The mode switching method according to claim 7, further comprising the steps of:

20 measuring a signal from a portable Internet if the signal from the WLAN has not been measured at the first step;

 calculating link quality of the measured signal;

 determining whether the link quality of the WLAN is higher than a second reference value preset for a corresponding communication network if the link quality of the signal is not higher than the second reference value and not lower than the first reference value; and

switching the mode of the mobile communication terminal to perform handoff to a mobile communication network if the link quality of the WLAN is not higher than the second reference value.

5 9. The mode switching method according to claim 8, further comprising the step of switching the mode of the mobile communication terminal to perform handoff to the WLAN if the link quality of the WLAN is higher than the second reference value.

10 10. The mode switching method according to claim 7, further comprising the steps of:

measuring a signal from a portable Internet if, as a result of the comparison at the third step, the link quality of the WLAN is not higher than the first reference value;

calculating link quality of the measured signal;

15 determining whether the link quality of the WLAN is higher than a second reference value preset for a corresponding communication network if the link quality of the signal is not higher than the second reference value and not lower than the first reference value; and

20 switching the mode of the mobile communication terminal to perform handoff to a mobile communication terminal if the link quality of the WLAN is lower than the second reference value.

11. The mode switching method according to claim 10, further comprising the step of switching the mode of the mobile communication terminal to perform handoff to the WLAN if the link quality of the WLAN is higher than the second reference value.

12. The mode switching method according to claim 7, wherein the link quality is a data transmission rate of a corresponding communication network based on a PER.

5 13. The mode switching method according to claim 7, wherein the reference value is a minimal effective transmission rate of a corresponding communication network.

10 14. A mode switching method for a multi-mode multi-band mobile communication terminal in a multi-access communication network, the multi-mode multi-band mobile communication terminal having modems for communication with a plurality of communication networks having different coverages, comprising:

the first step of measuring a signal from a WLAN having coverage narrower than that of a mobile communication network in which the mobile communication terminal is currently located;

15 the second step of calculating link quality of the WLAN signal measured at the first step;

the third step of comparing the link quality of the WLAN signal measured at the second step with a preset first reference value;

20 the fourth step of measuring a signal from a portable Internet if, as a result of the comparison at the third step, the link quality of the WLAN is not higher than a first reference value;

the fifth step of measuring link quality of the portable Internet signal measured at the fourth step; and

25 the sixth step of switching a mode of the mobile communication terminal to perform handoff to the portable Internet if the link quality of the portable Internet calculated at the fifth step is higher than a second reference value.

15. The mode switching method according to claim 14, further comprising the step of switching the mode of the mobile communication terminal to perform handoff to the WLAN if, as a result of the comparison at the third step, the link quality of the WLAN
5 is higher than the first reference value.

16. The mode switching method according to claim 14, further comprising the steps of:

determining whether the link quality of the WLAN is higher than the second
10 reference value if the signal from the portable Internet has not been measured at the fourth step;

switching a mode of the mobile communication terminal to perform handoff to the WLAN if the link quality of the WLAN is higher than the second reference value; and

15 maintaining communication with the mobile communication network if the link quality of the WLAN is not higher than the second reference value.

17. The mode switching method according to claim 14, further comprising the steps of:

determining whether the link quality of the WLAN is higher than the second
20 reference value if the link quality of the portable Internet calculated at the fifth step is not higher than the second reference value;

switching a mode of the mobile communication terminal to perform handoff to the WLAN if the link quality of the WLAN is higher than the second reference value; and

25 maintaining communication with the mobile communication network if the link quality of the WLAN is not higher than the second reference value.

18. The mode switching method according to claim 14, wherein the link quality is a data transmission rate of a corresponding communication network based on a PER.

5 19. The mode switching method according to claim 14, wherein the reference value is a minimal effective transmission rate of a current communication network.